

ject of considerable interest in geology, as tending to identify the products of the ancient seas in their most minute particulars with those of the present ocean. The results of his inquiries are given in the form of a table, in which the springs, whose waters he examined, are classified according to the geological position of the strata from which they issue, and of which the several columns exhibit the total amount of their saline ingredients; the nature and proportion of each ingredient, as ascertained by former chemists, or by the author himself; and lastly, where they contained either iodine or bromine, the proportions these substances bear to the quantities of water, and likewise to the chlorine also present in the same spring. He finds that the proportion of iodine to chlorine varies in every possible degree; and that even springs which are most strongly impregnated with common salt are those in which he could not detect the smallest trace of iodine. The same remark, he observes, applies also to bromine; whence he concludes, that although these two principles may, perhaps, never be entirely absent where the muriates occur, yet their relative distribution is exceedingly unequal. The author conceives that these analyses will tend to throw some light on the connection between the chemical constitution of mineral waters and their medicinal waters. Almost the only two brine springs, properly so called, which have acquired any reputation as medicinal agents, namely, that of Kreutznach in the Palatinate, and that of Ashby-de-la-Zouch in Leicestershire, contain a much larger proportion than usual of bromine, a substance, the poisonous quality of which was ascertained by its discoverer Balard. The author conceives that these two recently discovered principles exist in mineral waters, in combination with hydrogen, forming the hydriodic and hydrobromic acids, neutralized in all probability by magnesia, and constituting salts which are decomposable at a low temperature. He has no doubt that a sufficient supply of bromine might be procured from our English brine springs, should it ever happen that a demand for this new substance were to arise.

*Experiments to determine the Difference in the Number of Vibrations made by an Invariable Pendulum in the Royal Observatories of Greenwich and Altona. By Captain Edward Sabine, of the Royal Artillery, Sec. R.S. Read March 25, 1830. [Phil. Trans. 1830, p. 239.]*

The invariable pendulum, No. 12, with which the experiments recorded in this paper were made, was vibrated in the Royal Observatory at Greenwich in July 1828; in the Royal Observatory at Altona in September and October of the same year; and again at the Royal Observatory at Greenwich in August 1829. The mean of the results obtained at Greenwich in July 1828 and in August 1829, give the rate of this pendulum at Greenwich to be compared with its rate obtained at Altona. The details of all these series of observations are given in a tabulated form.